

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Commission Seeks Public Comment)	ET Docket No. 02-135
On Spectrum Policy Task Force Report)	
)	

COMMENTS OF PROXIM CORPORATION

Proxim Corporation (“Proxim”), by its attorneys, respectfully submits these comments in response to the request for public comment on the Spectrum Policy Task Force (“SPTF”) Report.¹ As a leading provider of high-performance wireless local area networking (WLAN) and wireless wide area networking (WWAN) products, Proxim has a great interest in the views expressed in the SPTF Report, especially concerning issues affecting spectrum flexibility, new technologies, interference and performance standards, and unlicensed spectrum generally.

In its Report, the SPTF has made very interesting and useful recommendations concerning these and other spectrum policy issues and Proxim looks forward to participating in this proceeding and additional proceedings that are needed to implement the SPTF recommendations.

¹ See Spectrum Policy Task Force Report, ET Docket No. 02-135 (Nov. 2002) (“SPTF Report” or “Report”); see also Commission Seeks Public Comment on Spectrum Policy Task Force Report, Public Notice, ET Docket No. 02-135, FCC 02-322 (rel. Nov. 25, 2002).

In particular, Proxim supports the SPTF recommendations to:

- Direct spectrum policy toward more flexible and market-oriented regulatory models, with an emphasis on maximum flexibility of spectrum use.²
- Create a balanced regulatory environment, employing exclusive spectrum rights, spectrum commons, and command and control mechanisms.³
- Work toward a regulatory environment that takes into account multiple dimensions of spectrum use, including frequency, power, space, and time, by anticipating changes in technology such as software-defined radios (“SDR”), frequency-agile radios, and other digital technologies.⁴
- Allocate additional unlicensed spectrum.⁵

There is, however, one significant aspect of spectrum policy that is not addressed in the SPTF Report: coordination of spectrum policy and usage between the FCC and NTIA, on behalf of federal spectrum users.

A. Greater Coordination Between the FCC and NTIA Is Needed to Resolve Spectrum Sharing Issues Arising Between Governmental and Commercial Users

In general, there is a need for closer coordination between the FCC and NTIA so that spectrum sharing issues between federal governmental and non-federal spectrum users may be resolved more efficiently and expeditiously. In the section of the Report dealing with “Transition Issues,” the following comment is made:

Implementing a transition may also be difficult in spectrum bands that are currently shared with the federal government, because the Commission cannot regulate federal spectrum uses, and the presence of federal users in such bands may limit the benefits of any flexibility that would be afforded to non-federal spectrum users. However, the Task Force recommends consideration of these bands for transition purposes to the extent that transition would be beneficial, and recommends that the Commission work with NTIA to consider alternatives

² See SPTF Report at 15-17, 36, 45.

³ See *id.* at 17.

⁴ See *id.* at 56.

⁵ See *id.* at 54.

for introducing greater flexibility and efficiency into federal government uses of spectrum.⁶

In recent spectrum-related activities, particularly involving the 5 GHz unlicensed spectrum bands,⁷ one of the major impediments to reaching a resolution has been the disagreement between federal and non-federal spectrum users regarding the need and the mechanisms for sharing this spectrum successfully. Although representatives of both groups of spectrum users have participated in discussions to try to resolve these issues through the use of simulation and modeling, the two groups have not been able to reach a consensus.

Since non-federal government spectrum is regulated by the FCC and federal government spectrum is regulated by the NTIA, there is no single authority that is responsible for resolving these types of disagreements among spectrum users. Although these issues are not solely within the authority of the FCC to address, like the SPTF's recommendations regarding legislative initiatives, it would be worthwhile for the SPTF to focus attention on a recommendation that coordination between the FCC and NTIA be improved.

One possible option is the creation of a dispute resolution body that could evaluate the interests of both federal and non-federal spectrum users, which would be comprised of representatives from both the FCC and NTIA. This entity would be responsible for resolving disputes whenever existing procedures do not produce timely resolution.

⁶ *Id.* at 47.

⁷ See *In re Amendment of the Commission's Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range*, ET Docket No. 96-102, Memorandum Opinion and Order, 13 FCC Rcd 14355 (1998).

B. Specific Comments on Issues Raised in the SPTF Report

In the balance of its comments, Proxim offers the following views on certain specific issues raised in the SPTF Report.

Software-Defined Radios. The SPTF Report states that "[s]oftware-defined radios are a significant technological advancement illustrating how technological advances can enable more intensive spectrum use."⁸ Proxim agrees and also supports unconditionally the SPTF's emphasis on creating a regulatory environment that takes into consideration the technological changes that have been made in communications equipment.

However, the Commission and the SPTF also should recognize that there is likely to be a significant cost/benefit tradeoff to the use of advanced technologies like SDR. While these technologies can improve spectrum efficiency and usage, they will also add significant cost to products for the foreseeable future. While the regulatory environment must embrace the benefits of these new technologies, the Commission should recognize that these technologies will become available only over time and, when they are deployed, they may prohibit lower cost products from coming to market. Spectrum efficiency, like many other worthy goals, will come at a price.

Flexible Spectrum Use. Proxim long has been an advocate of flexible spectrum use in the unlicensed bands, with only as much regulation as is required to prevent abuse. Therefore, Proxim fully supports the SPTF's "minimalist" recommendation that:

[t]he Commission should seek to avoid rules that restrict spectrum use to particular services or applications, so long as the user operates within the technical parameters applicable to the particular band in question. Furthermore, these technical parameters should themselves be limited to those that are necessary to define the user's RF environment in terms of maximum allowable output and required tolerance of interference.⁹

⁸ SPTF Report at 14.

⁹ *Id.* at 16-17.

Proxim also fully supports the SPTF's philosophy that "the Commission's approach should be that licensees and unlicensed users are allowed to do anything not explicitly prohibited."¹⁰

Interference Temperature. Proxim is very interested in following the evolution of, and participating in discussions concerning, the concept of an "interference temperature," which measures the RF power available at the receiving antenna per unit bandwidth.¹¹ As has been stated often times in this proceeding, it is a very good idea to understand the condition of the noise floor and to have a uniform method of describing cumulative noise floor. The concept of an interference temperature could well be an appropriate measurement methodology.

There are, however, a number of questions that need to be clarified before taking this approach. For example, how will data of the current interference temperature be used to make decisions about new services? Even if an understanding of the noise floor is based on measurements, the effect of a new service on that floor is going to be based on a prediction not unlike predictive models that are already in use today. Those predictions are the subject of great dispute because of uncertainties in the model regarding parameters such as service penetration, duty cycle, user densities, etc. Thus, it should be made clear how the interference temperature concept will solve the basic problem of prediction.

Receiver Performance Standards. Proxim agrees with the opinions expressed by other parties that the development of receiver standards or minimum receiver performance requirements will help reduce spectrum interference problems. Proxim,

¹⁰ *Id.* at 18.

¹¹ *See id.* at 20, 27-30.

however, also supports the SPTF's preference for the use of receiver performance standards that are voluntary rather than mandatory.¹²

Transition Mechanisms. In its discussion of transition mechanisms, the SPTF recommends that the FCC "look for bands in which to test different transition mechanisms."¹³ Proxim finds this recommendation to be extremely encouraging. Too often spectrum policy debates are based upon the protagonists' competitive objectives or exaggerated fears of interference. It would be much more beneficial if testing were used not only for transition mechanisms, but also as a means to implement the recommendations made by the SPTF.

Unlicensed Spectrum and Band Managers. Proxim generally supports the recommendations made by the SPTF concerning unlicensed spectrum, specifically those recommendations to tilt the spectrum management policy of the FCC preferentially towards a commons regime,¹⁴ to find more spectrum to be allocated for unlicensed uses,¹⁵ and to harmonize domestic spectrum allocations with international allocations.¹⁶

Proxim, however, has reservations about the SPTF's suggestion to use a band manager or frequency coordinator for unlicensed bands.¹⁷ The purpose of such a mechanism appears to be the avoidance of a "tragedy of the commons" scenario developing in these bands. It is Proxim's opinion that the likelihood of such a tragedy actually occurring is overstated. Advancements in technology and flexible rules that will allow for rapid technological changes are better mechanisms to prevent such a tragedy from occurring. Nevertheless, Proxim welcomes further discussion of alternative mechanisms.

¹² See *id.* at 31, 34, 65.

¹³ *Id.* at 51.

¹⁴ See *id.* at 39-40.

¹⁵ See *id.* at 54-55.

¹⁶ See *id.* at 41-42.

¹⁷ See *id.* at 54.

C. Conclusion

Proxim commends the SPTF for preparing a comprehensive report that will serve as a guidepost for future Commission proceedings, in which Proxim will participate constructively.

Respectfully submitted,

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